4.14 SSR® Plug System Releasing Dart

The SSR® plug system releasing dart is launched from the surface when SSR plug sets are used. The dart is generally supplied with the SSR plug set and must be sized to fit the drillpipe being used.

4.14.1 SSR Plug System Releasing Dart Dimensional Information

Table 4.14.1.A provides dimensional data for the standard drillpipe releasing dart (**Figure 4.14.1.A**). When an SSR plug arrives on location, the packaged drillpipe plug should be measured to verify that the correct drillpipe releasing dart has been furnished with the plug set. All drillpipe run in the hole during the hookup should be "rabbited" with a steel or brass bar to verify that the rabbit will pass through the minimum ID restriction noted in Table 4.14.1.A.

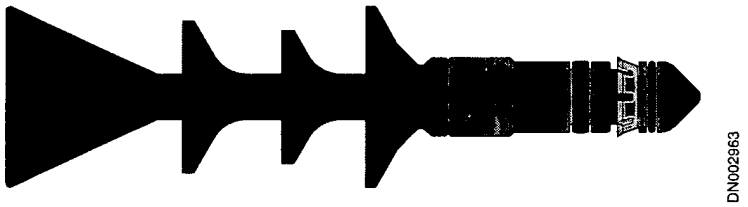

Figure 4.14.1.A—SSR plug system releasing dart

Table 4.14.1.A—SSR Plug System Releasing Dart Dimensional Information

Drillpipe Size (in.)	4 1/2 to 5	5 to 5 1/2	6 5/8
IMS Part No.	809.31110	809.31115	809.31130
SAP Part No.	100074509	100074513	100074515
Cup OD for Wipers 1 and 4 (in.)	4.75	5.5	6.25 (wipers 1 and 3)
Cup OD for Wiper 2 (in.)	3.5	3.5	5.25
Cup OD for Wiper 3 (in.)	4.0	5.0	—
Length (in.)	18.15	18.56	19.35
Shoulder OD (in.)	2.06	2.06	2.06
Latch OD (in.)	2.125	2.125	2.125
Nose OD (in.)	1.855	1.855	1.855
Maximum Drillpipe ID (in.)	4.38	5.12	5.88
Minimum Drillpipe ID (in.)	2.25	2.50	2.75
Aluminum Volume ($in.^3$)/Weight (lb)	12.11/1.19	12.11/1.19	12.11/1.19
Plastic Volume ($in.^3$)/Weight (lb)	8.93/0.38	8.93/0.38	8.93/0.38
Rubber Volume ($in.^3$)/Weight (lb)	35.83/1.24	40.10/1.39	62.96/2.18

4.14.2 SSR Plug Syst m Rel asing Dart Dimensional Information for R duc d ID Restriction

The plug developed for pumping through smaller drillpipe IDs than the standard drillpipe releasing dart is shown in **Figure 4.14.2.A**. As noted in **Table 4.14.2.A**, this drillpipe plug will pass through a 2.125-in. ID in 4 ½-, 5-, and 5 ½-in. drillpipe.

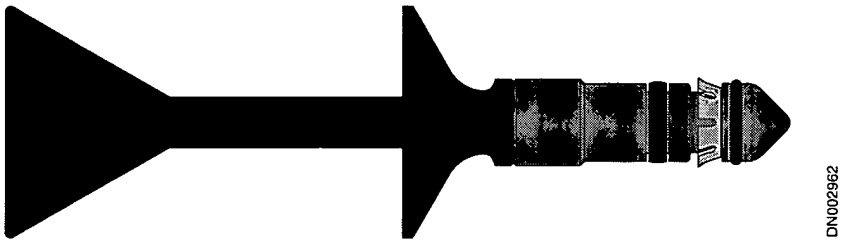

Figure 4.14.2.A—SSR plug system releasing dart for reduced ID restriction

Table 4.14.2.A—SSR Plug System Releasing Dart Dimensional Information for Reduced ID Restrictions

Drillpipe Size (in.)	4 1/2 to 5	5 to 5 1/2
IMS Part No.	809.20380	809.20385
SAP Part No.	101201150	101201173
Cup OD for Wipers 1 and 2 (in.)	4.75	5.50
Length (in.)	18.15	18.56
Shoulder OD (in.)	2.06	2.06
Latch OD (in.)	2.125	2.125
Nose OD (in.)	1.855	1.855
Maximum Drillpipe ID (in.)	4.38	5.12
Minimum Drillpipe ID (in.)	2.125	2.125
Aluminum Volume ($in.^3$)/Weight (lb)	12.11/1.19	12.11/1.19
Plastic Volume ($in.^3$)/Weight (lb)	8.93/0.38	8.93/0.38
Rubber Volume ($in.^3$)/Weight (lb)	26.72/0.93	28.92/1.0

4.14.3 SSR Plug System Bottom-Plug R l asing Ball

The bottom plug releasing ball for all 7-in. to 20-in. SSR plug sets (**Figure 4.14.3.A**) uses a 3.4-specific gravity ball, which will fall freely through most drillpipe tool joints. This ball is packaged with the SSR assembly. The size of the releasing ball should be measured before being launched into the drillpipe (**Table 4.14.3.A**).

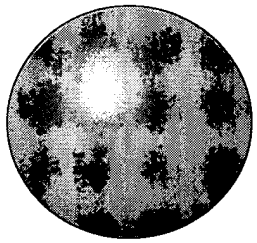

Figure 4.14.3.A—SSR plug system bottom-plug releasing ball

Table 4.14.3.A—SSR Plug System Releasing Ball for Releasing Bottom SSR Plug Only

SSR Size in. (mm)	Ball Material	Ball OD in. (mm)	Part No.
7 to 20 (178 to 508)	3.4-Sp.Gr. Plastic	1 3/4 (44)	70.00337 (100020470)

4.14.4 SSR Plug System Releasing Pressures

Table 4.14.4.A provides the gauge release pressure for SSR plugs. Pressure observed at the surface seldom indicates the bottom plug release pressure because the drillpipe and casing are usually in vacuum due to the fall of cement placed in the drillpipe and casing.

Table 4.14.4.A—SSR Plug System Releasing Pressures

SSR Plug Size (in.)	Top Plug (psi)[a]	Bottom Plug (psi)[a]	Bottom Plug Bypass (psi)[a]
7 to 13 3/8	2,500 ±500	1,100 ±500	1,550 ±500
16 to 20	2,500 ±500	1,100 ±500	875 ±250

[a]Pressures listed here are differential pressures. Gauge pressures might be greater or smaller than listed pressures, depending on wellbore hydraulics

Notes